

## TRUST INDICATION FOR WLAN ACCESS NETWORKS

### FIELD OF THE INVENTION

**[0001]** The present invention relates to an apparatus, a method, a system, and a computer program product related to improving the access from non-3GPP access networks to the 3GPP network. More particularly, the present invention relates to an apparatus, a method, a system, and a computer program product for improved access from a trusted non-3GPP network to the packet data core of the 3GPP network.

### BACKGROUND OF THE INVENTION

#### Abbreviations

**[0002]**

3GPP	3rd generation partnership project
TWAN	Trusted WLAN Access Network
WLAN	Wireless local area network
APCO	Additional Protocol Configuration Options
PCO	Protocol Configuration Options
MAG	Mobility Access gateway
PBU	Proxy Binding Update
PBA	Proxy Binding Acknowledgment
LMA	Local Mobility Anchor
PDN-GW	Packet data network gateway
AVP	Attribute value pair
PMIP	Proxy mobile IP
IP	Internet protocol
GTP	GPRS tunneling protocol
GPRS	General packet radio service
RA	Router advertisement
RAT	Radio access technology
TS	Technical specification
AAA	Authentication, authorization, and accounting
EPC	Evolved packet core
CDR	Charging data record
IANA	Internet assigned numbers authority
CR	Change Request
ePDG	evolved Packet Data Gateway

**[0003]** The present application is related to the authentication in 3GPP networks of subscribers attaching to a trusted WLAN network. More specifically, it improves the solution specified for Trusted WLAN Access without UE impact (Sa-MOG\_wlan) according to section 16 of 3GPP TS 23.402 Release 11.

**[0004]** FIG. 1 shows an example of an architecture for such trusted WLAN access, as specified by 3GPP TS 23.402, v11.2.0. According to this architecture, the trusted WLAN access network is connected to the 3GPP AAA server via STa interface and to the 3GPP PDN gateway via S2a interface. According to this TS, the S2a interface supports two protocol variants: GTP and PMIP v6 to be chosen by the TWAN.

**[0005]** The trust relationship of the access network is not a technical aspect of the access network but a decision of the operator of the network, which e.g. determines the authentication method to be used for network access. When the UE is attaching to a Trusted WLAN Access Network (TWAN) the UE shall first be authenticated and connection authorized by the 3GPP AAA Server, which is informed by TWAN about the trust relationship of the access network as currently specified by 3GPP.

**[0006]** It is an object of the present invention to improve the prior art.

**[0007]** According to a first aspect of the invention, there is provided an apparatus, comprising access providing means adapted to provide a non 3GPP network access to a user equipment; connecting means adapted to connect the apparatus via an interface to a packet data network gateway of a packet core network; indicating means adapted to indicate, to the packet data network gateway via the interface, an indication whether the non 3GPP network access is a trusted access.

**[0008]** In the apparatus, the non 3GPP network access may be a wireless local area network access. In the apparatus, the packet core network and/or the user equipment may belong to a 3GPP network.

**[0009]** The apparatus may further comprise an AAA interface means adapted to interface with an authentication, and/or authorization, and/or accounting server of the 3GPP network.

**[0010]** In the apparatus, the indication may comprise a radio access technology type indicating whether the non 3GPP network access is a trusted access.

**[0011]** In the apparatus, the indication may comprise an information element dedicated to indicating whether the non 3GPP network access is trusted.

**[0012]** In the apparatus, the indication may be comprised in an additional protocol configuration option.

**[0013]** According to a second aspect of the invention, there is provided an apparatus, comprising access providing processor adapted to provide a non 3GPP network access to a user equipment; connecting processor adapted to connect the apparatus via an interface to a packet data network gateway of a packet core network; indicating processor adapted to indicate, to the packet data network gateway via the interface, an indication whether the non 3GPP network access is a trusted access.

**[0014]** In the apparatus, the non 3GPP network access may be a wireless local area network access. In the apparatus, the packet core network and/or the user equipment may belong to a 3GPP network.

**[0015]** The apparatus may further comprise an AAA interface processor adapted to interface with an authentication, and/or authorization, and/or accounting server of the 3GPP network.

**[0016]** In the apparatus, the indication may comprise a radio access technology type indicating whether the non 3GPP network access is a trusted access.

**[0017]** In the apparatus, the indication may comprise an information element dedicated to indicating whether the non 3GPP network access is trusted. In the apparatus, the indication may be comprised in an additional protocol configuration option.

**[0018]** According to a third aspect of the invention, there is provided an apparatus, comprising gateway means adapted to provide a packet data network gateway functionality of a packet core network; connecting means adapted to connect the apparatus via an interface to a non 3GPP access network; receiving means adapted to receive an indication from the non 3GPP network indicating whether the non 3GPP network is trusted.

**[0019]** In the apparatus, the non 3GPP access network may be a wireless local area network. In the apparatus, the packet core network may belong to a 3GPP network.

**[0020]** In the apparatus, the indication may comprise a radio access technology type indicating whether the non 3GPP access network is trusted.